



RUMEX

1. *Rumex* hybrids

Docks are difficult to identify in the early stages of flowering, easiest when the nutlets are nearly ripe, but become slightly more difficult again as the inflorescences dry and the ripe nutlets are shed. Thus the best material is usually found between July and early September. Numerous stems often arise from a common rootstock and some species have long rhizomes, so care is needed to ensure that the material studied all comes from the same plant.

Familiarity with the usual appearance of each of the local dock species aids in detection of hybrids and is a necessity for their accurate identification. Hybrid plants often have an odd-looking pattern of branching, they may be unusually large or lax, they may have more red colouration than is usual, secondary flowering branches often develop below the primary inflorescence or they may simply look 'scruffy' because of partial sterility. Docks can, however, have an abnormal appearance due to other causes besides hybridity, including poor growth conditions such as result from drought, use of herbicides, physical damage, defoliating caterpillars, and galls induced by insect larvae living inside swollen, deep-red perianth segments.

Most hybrid docks produce little or no fertile 'seed' (strictly speaking, the nutlets are fruits, not seeds), and this sterility provides an important character for distinguishing many hybrids from variants of the parental species. Only two hybrid combinations commonly have half or more of the seed viable: *R. conglomeratus* × *R. sanguineus* and *R. obtusifolius* × *R. crispus*, but even these typically show reduced fertility.

On fertile dock flowers the inner perianth-segments (also known as 'valves' or 'tepals') enlarge and gain their typical mature form for each species as the nutlet ripens. Hence, because fertile plants ripen nutlets progressively upwards from base to apex on each branch, each inflorescence will at some stage show a regular gradation in degree of enlargement of successive whorls of perianth segments, often accompanied by characteristic changes of colour. On infertile flowers little or no enlargement takes place and the perianth-segments soon wither, so that a partly or wholly infertile plant acquires a 'scruffy' and irregular appearance different from that of a wholly fertile one.

The most closely adjacent dock plants should be considered when attempting to decide the parentage of hybrids, and they should be carefully listed when the rarer hybrids are recorded. Nevertheless, some hybrids occur away from living plants of one or even both parental species.

An ideal specimen for the identification of a hybrid dock should consist of several stems with ripening nutlets, additional loose fruits with perianths if they are available and notes of the height and branching pattern of the plant. Basal leaves are usually withered or rotted on a fruiting dock, but a representative selection of these or the lowest available stem leaves should be studied. So far as known, all hybrid docks combine to varying extents the morphology of each of the parent species. Some hybrids may be closer in appearance to one parent, others may be closer to the other, but really new characters do not

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appear *except* that a few hybrids are considerably redder or taller, more vigorous plants than either of the parent species.

The most important identification characters when dealing with a hybrid are often those of the inner perianth-segments: size, shape and form of the teeth (if any). The largest (ripest) perianth-segments are the most useful and a good sample should be examined since their characters may vary considerably on the same hybrid plant, with some approaching the character of one parent and some approaching those of the other. Difficulties can be encountered with plants that are almost sterile, because they may have few well-developed perianth-segments available for study. Characters of the branching pattern, leaves, form of inflorescence and pedicel length are also useful, just as when identifying the parent species.

Comprehensive illustrations of each species are available in the *Docks Handbook* and figures of representative inner perianth-segments are given in Stace's *New Flora*. Nonetheless, rather than using illustrations or dry herbarium material, it is better to collect fresh samples of each potential parent species (except the rarest ones!) and make direct comparisons.

Reference Holyoak, D. T. (1996). *Botanical Cornwall* **7**: 8-26.

Author D. T. Holyoak, January 1998.

2. *Rumex acetosa*

Stace's *New Flora* includes four subspecies of *R. acetosa* L. and information is required on their distribution. Some upland plants would also be worth investigating in more detail.

Subsp. *acetosa* is common and widespread; var. *hirtulus* Freyn is papillose-puberulent too, and is locally common (e.g. in V.c. 46).

Subsp. *hibernicus* (Rech. f.) Akeroyd is a distinctive variant widespread on western coasts of Britain and Ireland in dune grassland (Akeroyd 1989). It has a dwarf habit, shorter basal leaves, narrower cauline leaves, and a dense, often sub-simple inflorescence. The stems, petioles and leaves are papillose-puberulent. In cultivation, some forms can grow as tall as subsp. *acetosa* (Lousley 1967), but there is considerable variation in this (J. R. Akeroyd, pers. comm. 1997).

Subsp. *biformis* (Lange) Valdés-Berm. & Castrov. is widespread on sea cliffs around the western coast (Rechinger 1990).

Subsp. *ambiguus* (Gren.) Á. Löve (*R. rugosus* Campd.) is a rare escape from cultivation.

References Akeroyd, J. A. (1989). *Watsonia* **17**: 444.

Lousley, J. E. (1967). *Proc. BSBI* **7**: 25.

Rechinger, K. (1961). *Watsonia* **5**: 64-66.

Rechinger, K. (1990). *Watsonia* **18**: 209-210.

3. *Rumex frutescens* and hybrids

Rumex frutescens Thouars is a distinctive alien that is well established at single sites on dunes in W Cornwall, N Devon and S Wales and has been recorded elsewhere as casual. It is low-growing (to 30 cm) but spreads extensively by means of perennial rhizomes. The leaves are notably thick and leathery, with rounded tips and wavy margins. The fruits ripen late in season, on short pedicels, with inner perianth segments that are 4-5 mm long, narrowly ovate-triangular with entire margins, all three bearing a long, smooth tubercle. Optimists have mistaken its leaves for those of *R. rupestris*, but the very short pedicels

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(the part above joint shorter than inner-perianth segments) and several other characters are distinctive of *R. frutescens*.

Rumex frutescens* × *R. conglomeratus

Rumex × *wrightii* Lousley, the hybrid between *R. frutescens* and *R. conglomeratus*, has been recorded a few times in W Cornwall and N Devon, close to colonies of *R. frutescens*. The Cornish plants were short (up to 30 cm), rather untidy looking and appeared to be completely infertile, with only a few inner perianth segments enlarging sufficiently to show characters intermediate between those of the parent species. The Devon plants were taller, up to 40 cm. Development of rhizomes, lengths of pedicels and angle of branching in the inflorescences appear to be variable.

Rumex frutescens* × *R. obtusifolius

Rumex × *cornubiensis* Holyoak, the hybrid between *R. frutescens* and *R. obtusifolius*, has been recorded only at Phillack Towans in W. Cornwall, amongst a large colony of *R. frutescens*. The hybrid spreads by rhizomes to form large perennial patches, with fruiting stems up to 105 cm tall and leaves intermediate between those of the parent species. It is apparently infertile, but sufficient inner-perianth segments enlarge for it to be easy to demonstrate characters intermediate between those of parents: *R. frutescens* giving the long, three-tubercled inner-perianth segments, the *R. obtusifolius* giving 2-3 short teeth on margins of some of the segments. Pedicels are 2-5 mm long and mostly longer than in *R. frutescens* but shorter and thicker than in *R. obtusifolius*.

References Lousley, J. E. (1953). *Watsonia* **2**: 394.
Holyoak, D. T. (1995). *Watsonia* **20**: 413-414.
Holyoak, D. T. (1996). *Botanical Cornwall* **7**: 8-26.

Author D. T. Holyoak, January 1998.

4. *Rumex conglomeratus* / *R. sanguineus*

In some areas *R. sanguineus* L. plants growing in open grassland, hedges, etc. seem to be recorded in error as *R. conglomeratus* Murray (the expected species in these habitats), so please check plants before recording them, on the basis of habitat alone.

A simple way to remember that *R. conglomeratus* is the species with usually three tubercles on the fruits and *R. sanguineus* usually has one, is to think that to be a conglomerate, it must have more than one!

5. *Rumex rupestris* and hybrids

Rumex rupestris Le Gall is a rare coastal species of SW England and Wales (Daniels, McDonnell & Raybould 1998), and may sometimes be overlooked. Most of its sites are at the bases of sea cliffs where there is seepage or flushing of fresh water. However, several of the largest colonies are in dune slacks or along ephemeral streams in sand dunes, where they are sometimes inconspicuous when growing intermixed with tall vegetation of such plants as *Epilobium hirsutum*. Identification of *R. rupestris* is frequently muddled with the much commoner *R. crispus* subsp. *littoreus* or *R. conglomeratus*, as well as with various hybrids, and is unreliable unless ripe fruit are present. The important fruiting characters are that *R. rupestris* combines inner-perianth segments more than 3 mm long, with a large tubercle on each segment that is almost or quite as wide as the widest part of the segment.

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As noted below, more hybrids involving *R. rupestris* have been found in the past few years than previously. Besides their other characters, these hybrids all differ from *R. rupestris* in showing greatly reduced fertility. A full account of all hybrids involving *R. rupestris* is in preparation.

Rumex rupestris* × *R. conglomeratus

Two plants were studied in detail in 1995-6 in W. Cornwall. They occurred together with both parent species and were largely infertile. They mainly combined characters from both parent species, although one plant was much larger. Several fertile, introgressed *R. conglomeratus* plants occurred with the F1 hybrids.

Rumex rupestris* × *R. crispus

Apparently a rare hybrid, with records of only 4 plants from the vicinity of colonies of *R. rupestris* in Isles of Scilly, Cornwall and Glamorgan. The hybrids are largely infertile and combine the characters of the two parent species.

Rumex rupestris* × *R. obtusifolius

Three plants were studied in detail in 1995-6 in W Cornwall. They occurred close together and near to both parent species. They were largely infertile and combined characters from both parent species, although only small teeth were present on the inner perianth segments.

Rumex rupestris* × *R. pulcher

Rumex × *trimenii* E. G. Camus is a hybrid between *R. rupestris* and *R. pulcher*, recorded only four times, in Cornwall and Isles of Scilly at sites with *R. rupestris*. It is partly fertile at most, and combines the widely divaricate branching pattern and teeth on margins of inner perianth segments from *R. pulcher* with the narrow inner perianth segments and rather thick leaves of *R. rupestris*.

References Daniels, R. E., McDonnell, E. J. & Raybould, A. F. (1998). *Watsonia* **22**: 33-39.
Holyoak, D. T. (1995). *Sanctuary* **24**: 35.
Holyoak, D. T. (1996). *Botanical Cornwall* **7**: 8-26.
Holyoak, D. T. (2000). *Watsonia* **23**:83-92

Author D. T. Holyoak, January 1998.

6. *Rumex pulcher* / *R. obtusifolius*

Leaves of young plants or newly developing leaves of established plants of *R. obtusifolius* L. are sometimes fiddle-shaped like those of *R. pulcher* L. and could be mis-recorded by the unwary. Later they develop the typical *R. obtusifolius* shape and there should be no difficulty separating mature plants.

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7. *Rumex maritimus* / *R. palustris*

These two species occur, sometimes together, in wet or marshy habitats. They both possess long, slender spines on the margins of the fruiting perianth-segments, and are frequently confused, particularly when in immature fruit (fruits are ripe when the seeds are brown). The following differences separate them; further details are available in Lousley (1944).

R. maritimus L.: Pedicels filiform, usually longer than the perianth; anthers 0.4-0.6 mm; perianth-segments (inner 3) with very slender, flexible, hair-like spines in fruit; ripe infructescence yellowish.

R. palustris Sm.: Pedicels rather thick, usually shorter than the perianth; anthers 0.9-1.3 mm; perianth-segments (inner 3) with slender, somewhat rigid spines in fruit; ripe infructescence pale brown.

The anther length is a very useful character, and is best seen in fresh material. It can be recommended to separate only these two species, although further research on its application in *Rumex* might be interesting.

Reference Lousley, J. E. (1944). *Rep. Botl. Soc. Exch. Club Br. Isles* **12**: 547-585.

Author J. R. Akeroyd, February 1988.